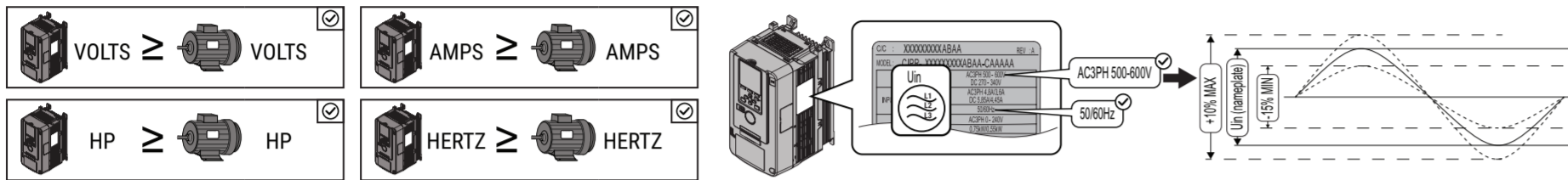
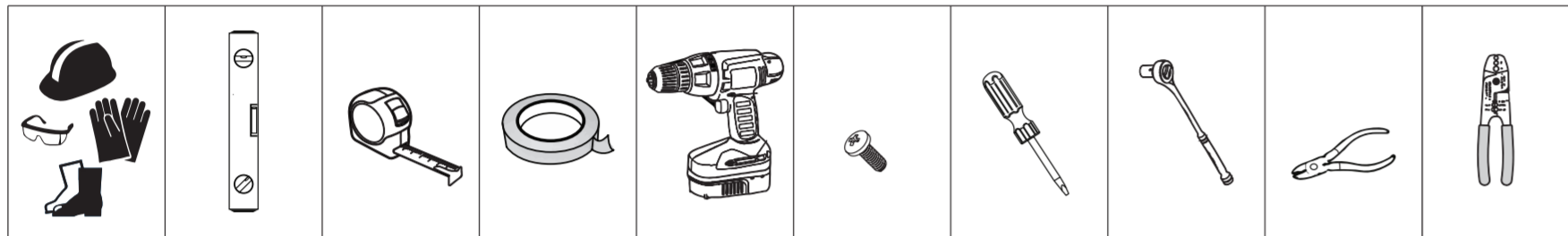




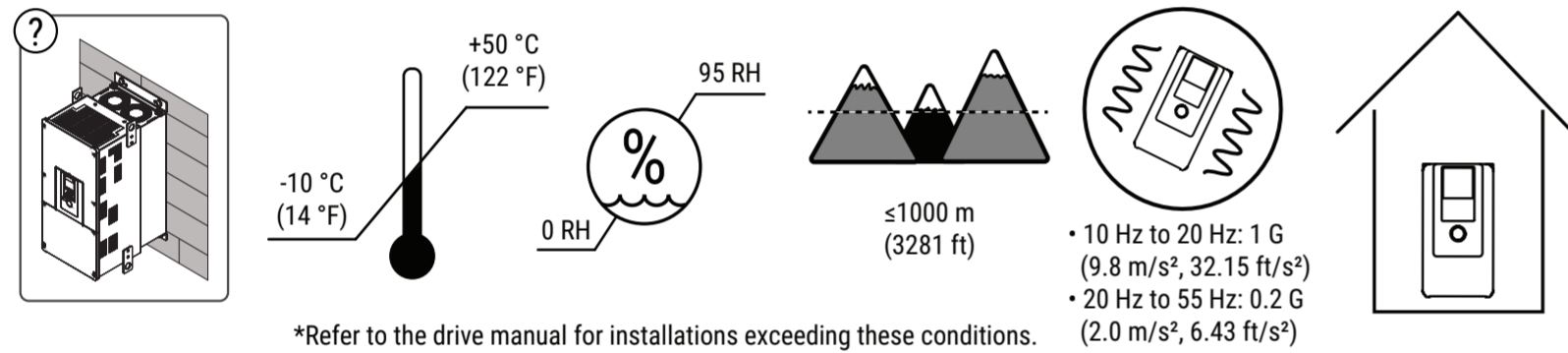
1 Confirm the Drive and Motor Specifications



2 Collect the Required Tools and Equipment

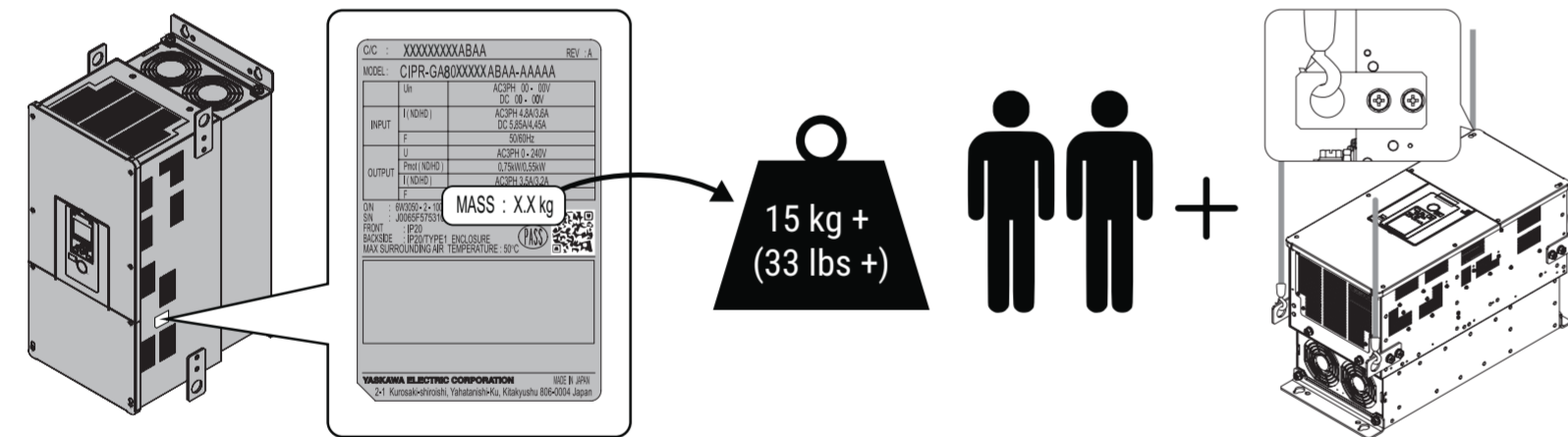


3 Confirm the Correct Drive Installation Environment

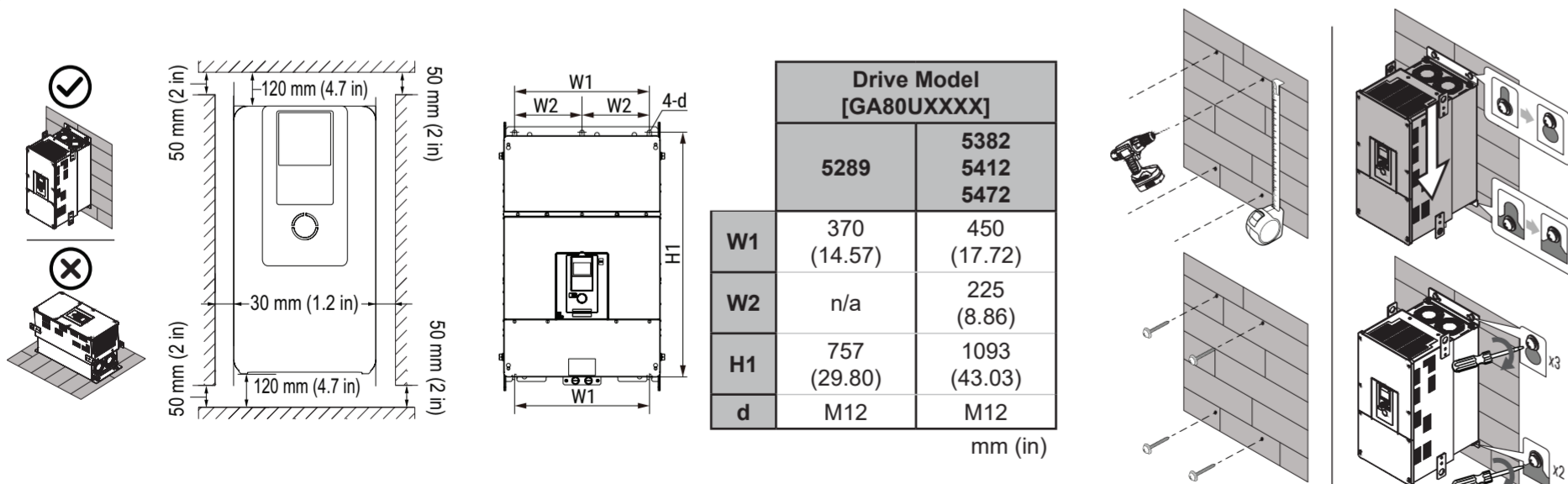


*Refer to the drive manual for installations exceeding these conditions.

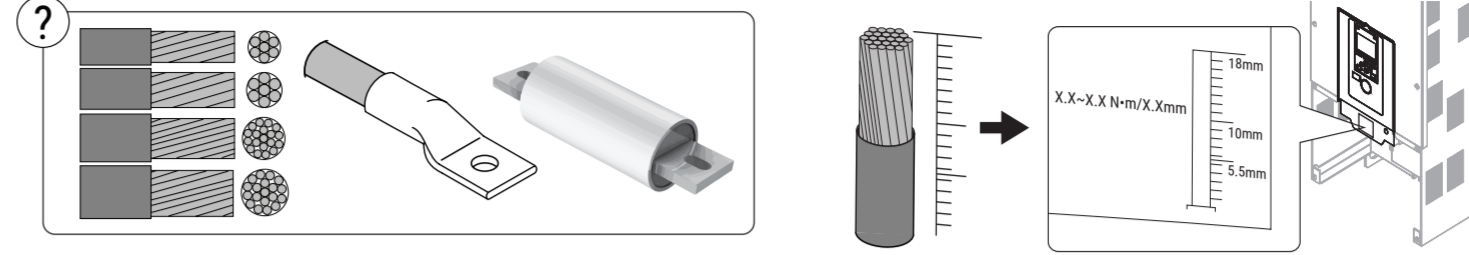
4 Correctly Lift the Drive



5 Mount the Drive



6 Select the Wires, Wire Strip Length, Crimp Terminals, and Fuses



Factory-Recommended Wires and Crimp Terminals

Use UL-Listed, vinyl-coated insulated copper wires for operation with a continuous maximum permitted temperature of 75 °C at 600 V.

Use UL-Listed closed-loop crimp terminals to maintain compliance with UL 508C. Use the tools recommend by Panduit Corp. to crimp the closed-loop crimp terminals.

To comply with UL standards, use only insulated crimp terminals or crimp terminals with heat-shrinkable tubing.

Drive Model [GA80UXXXX]	Terminal	Wire Range AWG, kcmil (Recommended)	Panduit Crimp Terminal Part Number*1	Drive Model [GA80UXXXX]	Terminal	Wire Range AWG, kcmil (Recommended)	Panduit Crimp Terminal Part Number*1
5289	R/L1, S/L2, T/L3	2/0 - 300 (2/0 × 2P)	S2/0-12R	5412	R/L1, S/L2, T/L3	2/0 - 300 (2/0 × 4P)	S2/0-12R
	U/T1, V/T2, W/T3	2/0 - 300 (3/0 × 2P)	S3/0-12R		U/T1, V/T2, W/T3	2/0 - 300 (3/0 × 4P)	S2/0-12R
	-, +1	4/0 - 400 (4/0 × 2P)	S4/0-12R		-, +1	3/0 - 400 (4/0 × 4P)	S4/0-12R
	+3	1 - 4/0 (1/0 × 2P)	S1/0-12R		+3	2 - 4/0 (1/0 × 4P)	S1/0-12R
	⊕	1 - 350 (1)	S2-12R		⊕	1 - 300 (1)	S2-12R
5382	R/L1, S/L2, T/L3	2/0 - 300 (4/0 × 2P)	S4/0-12R	5472	R/L1, S/L2, T/L3	2/0 - 300 (3/0 × 4P)	S3/0-12R
	U/T1, V/T2, W/T3	2/0 - 300 (250 × 2P)	S250-12R		U/T1, V/T2, W/T3	2/0 - 300 (3/0 × 4P)	S3/0-12R
	-, +1	3/0 - 400 (350 × 2P)	LCAX350-12		-, +1	3/0 - 400 (4/0 × 4P)	S4/0-12R
	+3	2 - 4/0 (3/0 × 2P)	S3/0-12R		+3	2 - 4/0 (1/0 × 4P)	S1/0-12R
	⊕	1 - 300 (1)	S2-12R		⊕	1/0 - 300 (1/0)	S1/0-12R

*1 For use with PANDUIT Corp. heat-shrinkable tubing HSTT series or an equivalent UL-recognized-heat shrinkable tubing rated 600 V minimum.

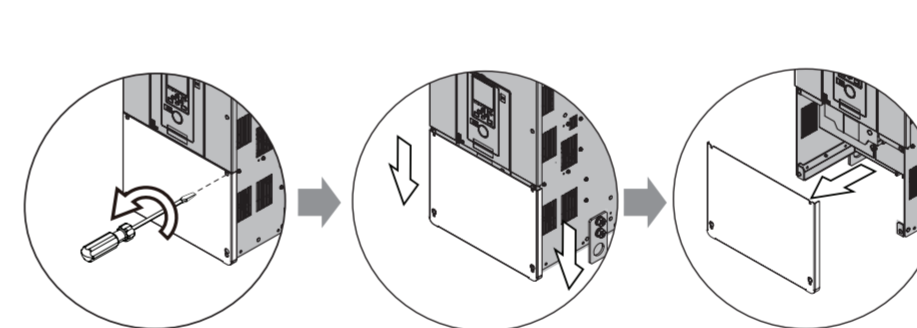
Factory-Recommended Fuses

Yaskawa recommends installing one of the following types of branch circuit protection to maintain compliance with UL 508C.

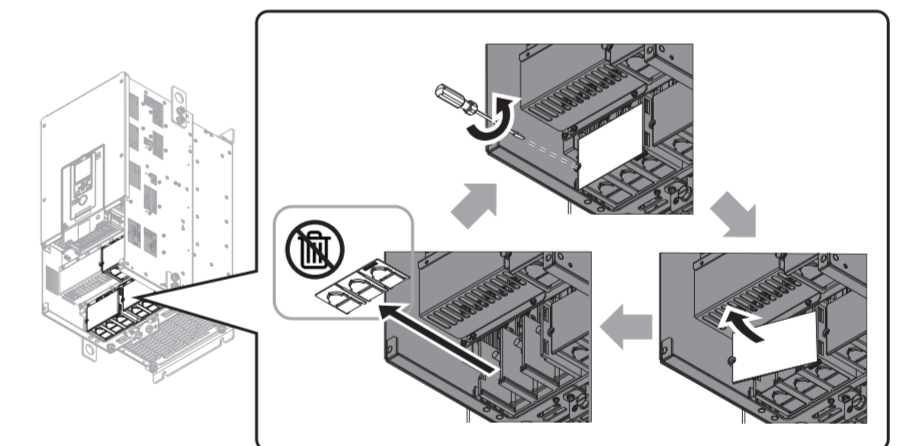
Semiconductor protective type fuses are preferred.

Model	Semiconductor	
	Model	Manufacturer
5289	A070UD32LI400	Mersen
5382	FWP-600A	Bussmann
5412	FWP-600A	
5472	FWP-700A	

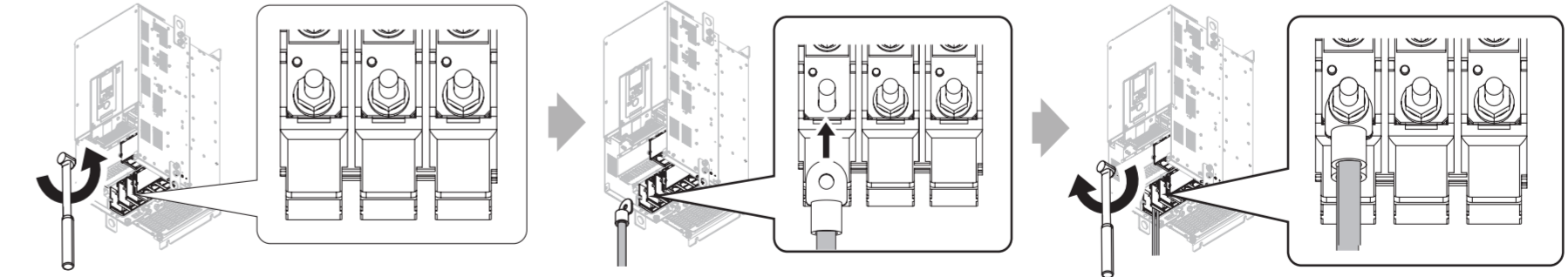
7 Remove the Terminal Cover



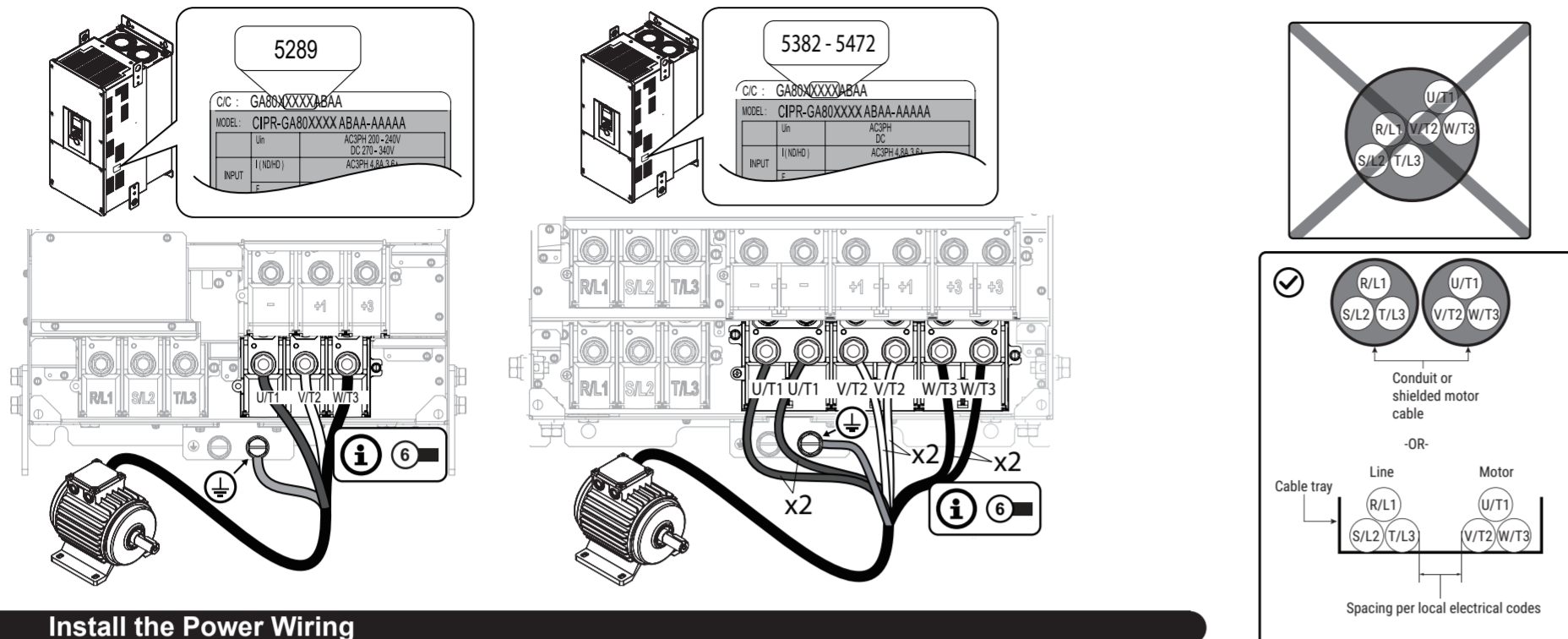
8 Remove the Terminal Block Cover and Wiring Cover



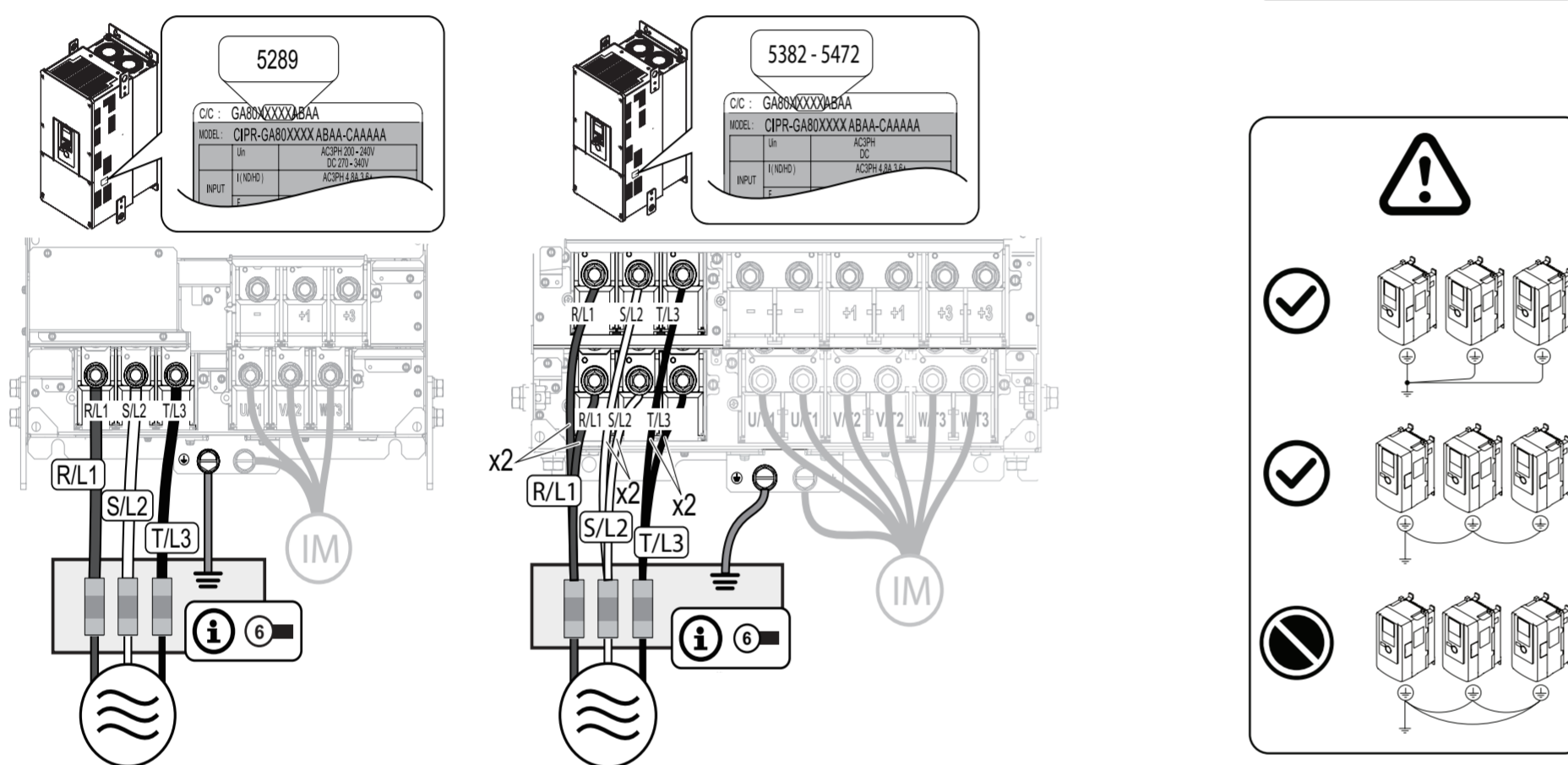
9 Remove Terminal Block Nut to Attach Crimp Terminals



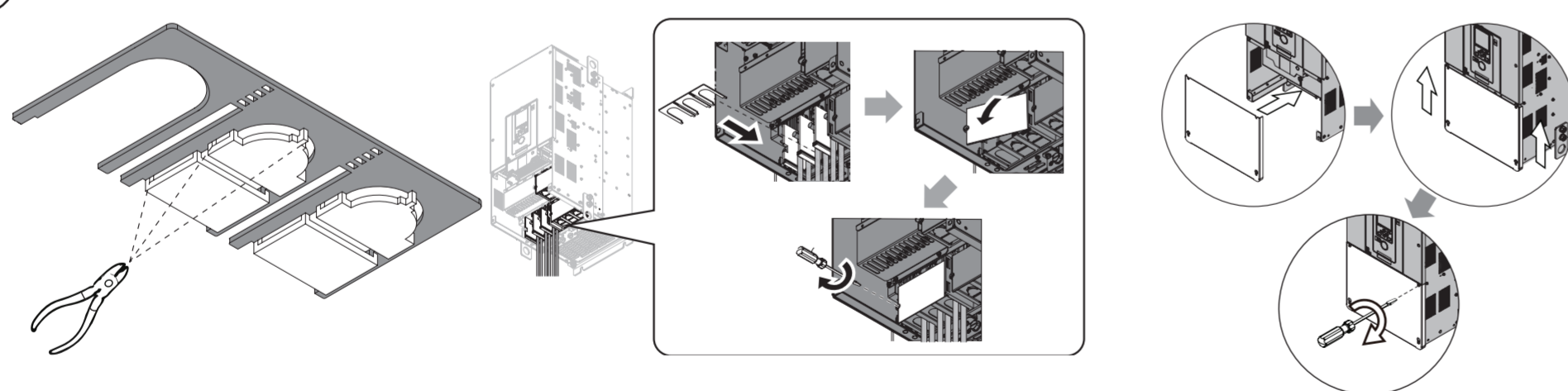
10 Install the Motor Wiring



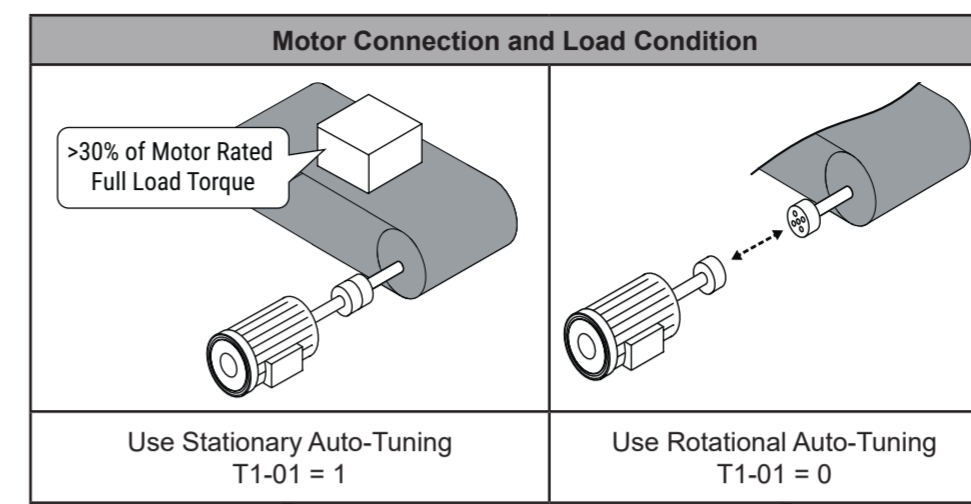
11 Install the Power Wiring



12 Remove the Tabs and Install the Wiring Cover, Terminal Block Cover, and Terminal Cover



13 Determine the Correct Auto-Tuning Method



14 Collect and Record Auto-Tuning Data from Motor Nameplate

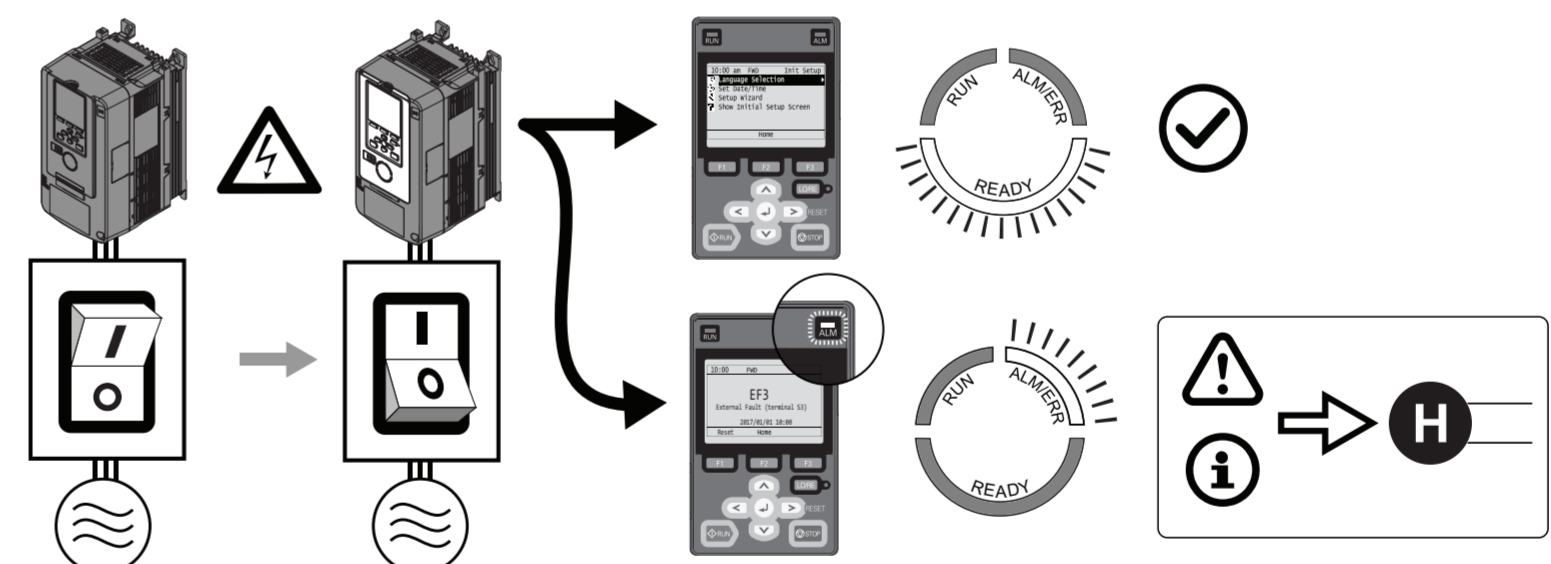
3 PHASE INVERTER DUTY AC INDUCTION MOTOR NAMEPLATE EXAMPLE

MODE E XX	123AAA123XX-X0	X FRAME 123AX			
POLES X	ENC XXX	CODE X			
VOLTS XXX B	FL RPM XXXX C	FL AMPS XX/XX C			
SF 1.0	DUTY CONT	MAX AMB °C XX			
SERIAL	TEMP SENSORS	T-STATS			
MAX RPM 4200	S.E. BRG. 309	O.S.E. BRG. XXX			
		ROTOR WK² X.X			
HZ	HP	RPM	TORQUE (LB FT)	VOLTS (HIGH CONN)	AMPS (HIGH CONN)
D 60	XX A	XXXX	XX.X	XXX	XX.X
120	XX	XXXX	XX.X	XXX	XX.X
OHMS PH.	R1: .XXX	R2: .XXX	X1: X.XX	X2: X.XX	XM: XX.X
P/N XXXXXXXX					

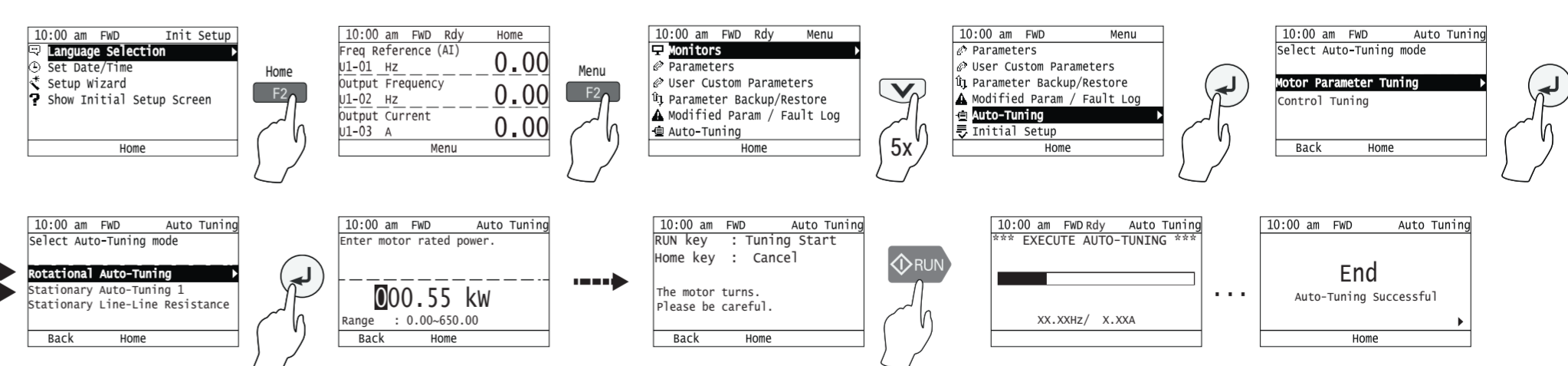
Reference	Motor Nameplate Data	Motor Nameplate Value	T1-xx Parameter (Ex-xx Parameter')
A	Motor Rated Power	(HP × 0.746) kW	T1-02 (E2-11)
B	Motor Rated Voltage	V	T1-03 (E1-05)
C	Motor Rated Current (FLA)	A	T1-04 (E2-01)
D	Motor Rated Frequency (Base Frequency)	Hz	T1-05 (E1-04/E1-06)
E	Motor Pole Count	-	T1-06 (E2-04)
F	Motor Rated RPM	RPM	T1-07
G	Motor No-Load Current*2	A	T1-09 (E2-03)
-	Motor Rated Slip*2 *3	0.000 Hz	T1-10 (E2-02)
-	Test Mode Selection*2	-	T1-12
-	Motor No-Load Voltage	V	T1-13

*Auto-Tuning will automatically set the E1-xx and E2-xx parameters. You can manually adjust Ex-xx parameters after Auto-Tuning.
 **These values are only necessary for Stationary Auto-Tuning (T1-01 = 1).
 ***If you do not know this value, leave at the default value of 0.000.

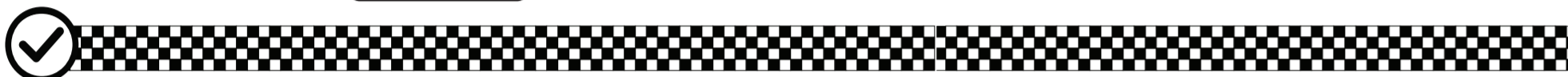
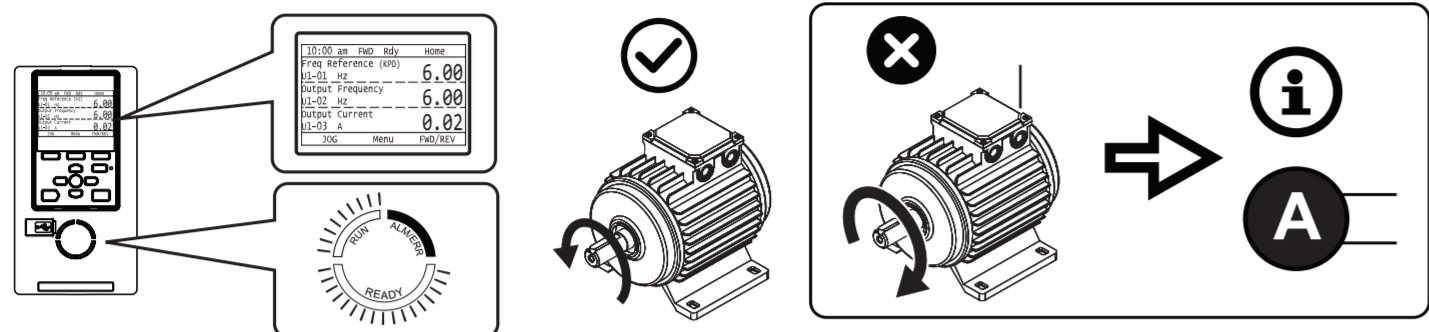
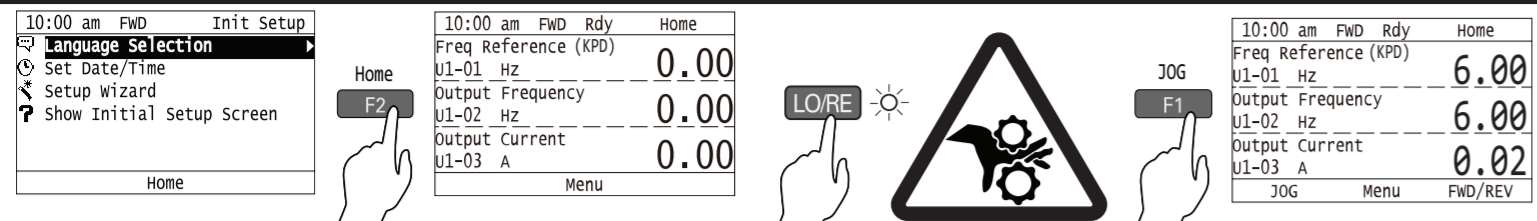
15 Energize the Drive and Confirm It is Ready



16 Use Auto-Tuning Data from Motor Nameplate to Set Parameters and Auto-Tune the Drive

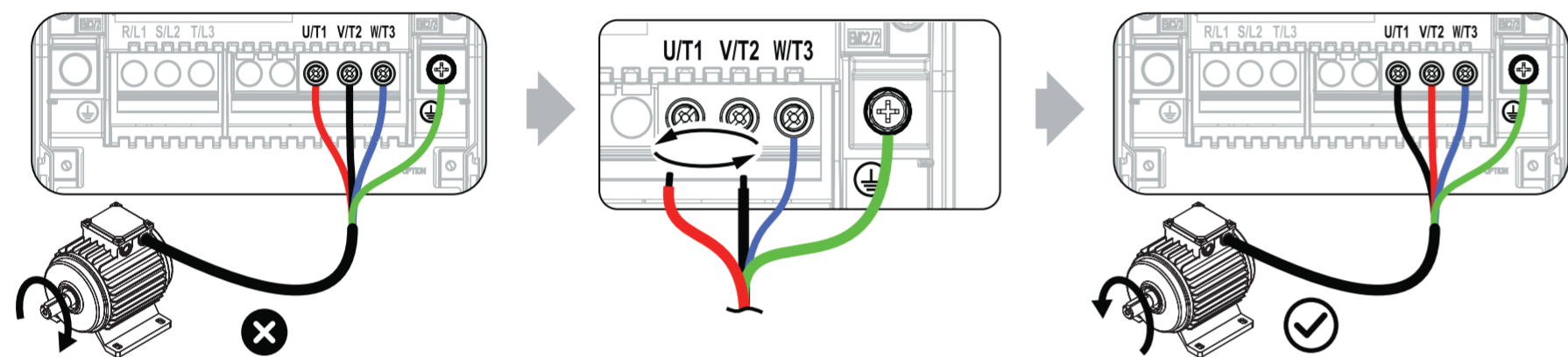


17 Set the Drive for LOCAL Control and Check the Motor Rotation Direction

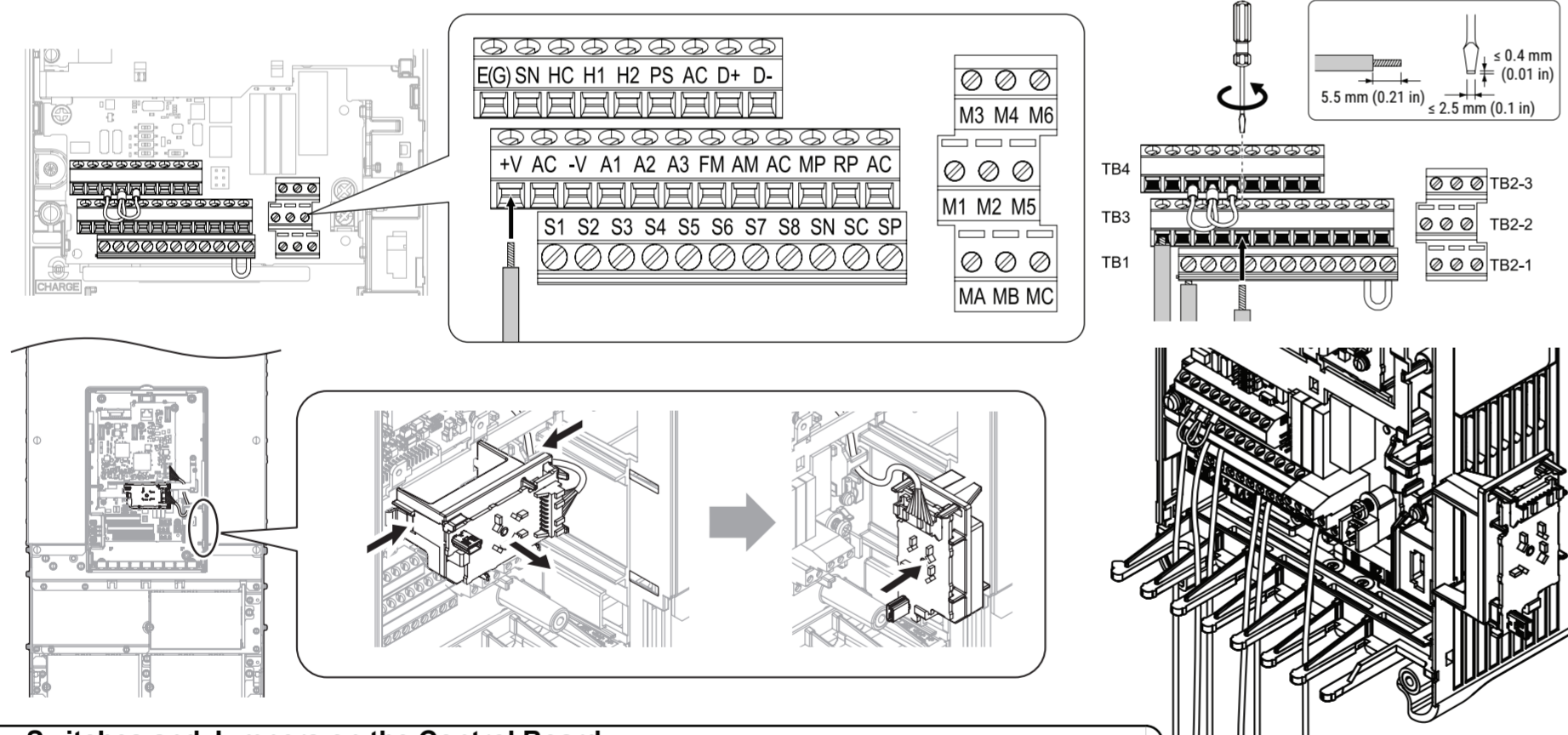


Additional Information for Installation and Primary Operation

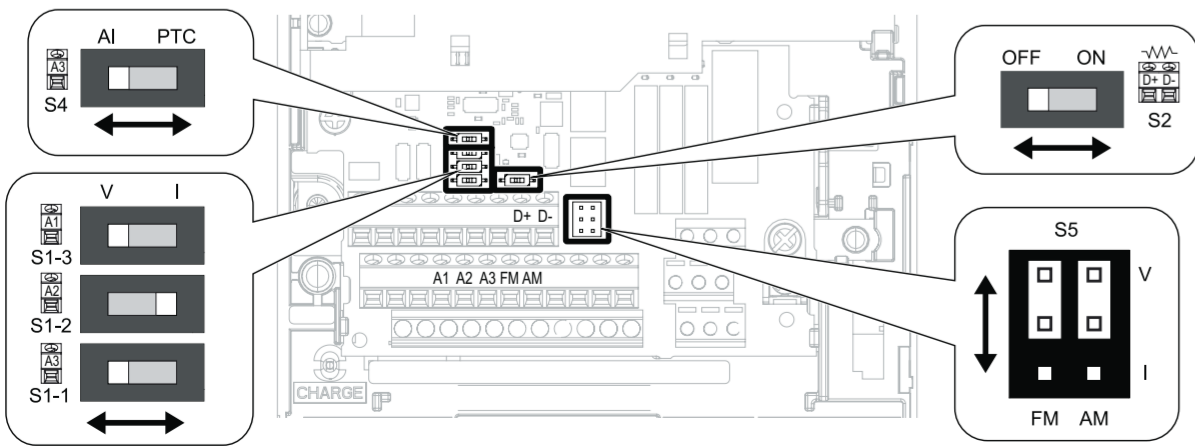
A If the Motor Does Not Rotate in the Correct Direction



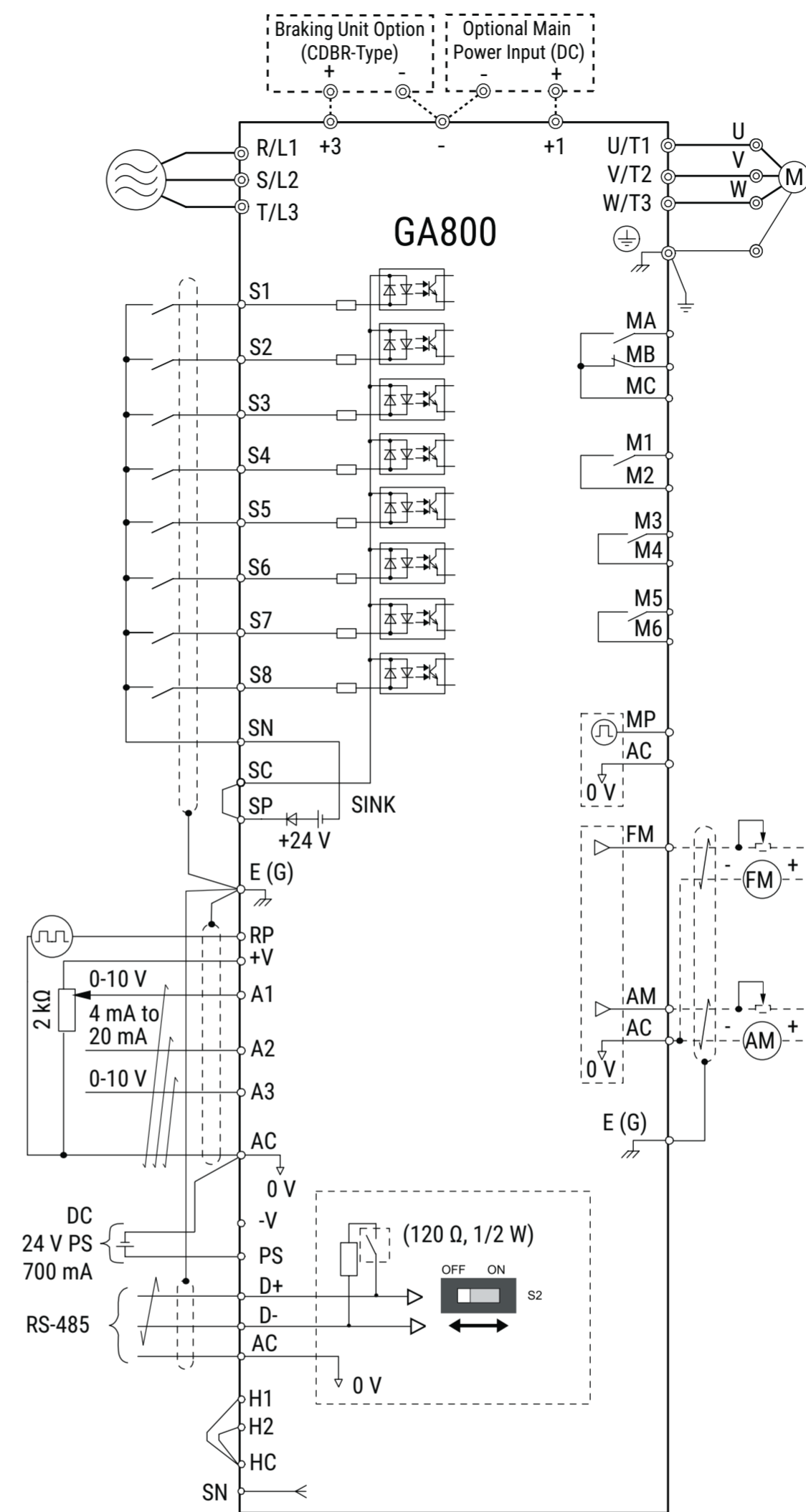
B Control Circuit Configuration and Assembly



C Switches and Jumpers on the Control Board

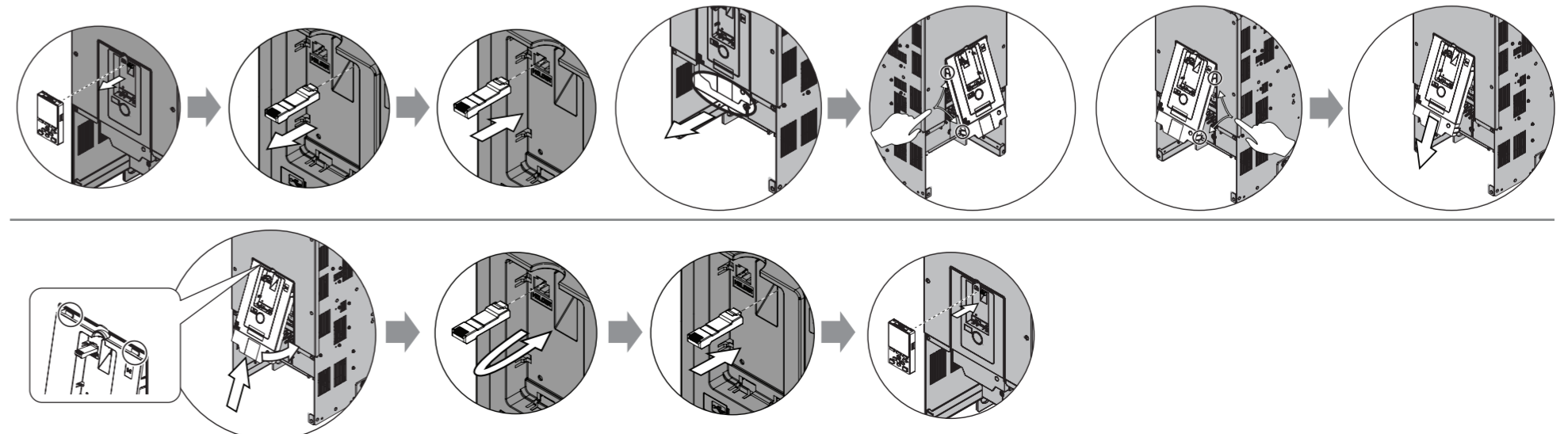


D Connection Diagram and Terminal Functions



Terminal	Type	Signal Level	Default
S1	MFDI 1	Photocoupler 24 V, 6 mA	Forward run/Stop
S2	MFDI 2		Reverse run/Stop
S3	MFDI 3		External fault
S4	MFDI 4		Fault reset
S5	MFDI 5		Multi-step speed 1
S6	MFDI 6		Multi-step speed 2
S7	MFDI 7		Jog command
S8	MFDI 8		Baseblock command
SN	MFDI power 0 V		-
SC	MFDI common	24 V, 150 mA maximum	-
SP	MFDI power + 24 VDC		-
H1	Safe disable input 1	24 V, 6 mA Internal impedance: 4.7 kΩ Minimum OFF time: 2 ms	-
H2	Safe disable input 2		-
HC	Safe disable common		-
RP	Master frequency reference pulse train input	Response frequency: 0 ~ 32 kHz H level duty: 30 ~ 70% H level voltage: 3.5 ~ 13.2 V L level voltage: 0.0 ~ 0.8 V Input impedance: 3 kΩ	-
+V	Frequency setting	10.5 V (20 mA maximum)	-
-V	power supply	-10.5 V (20 mA maximum)	-
A1	MFAI 1	-10 V ~ +10 V/-100% ~ +100% 0 V ~ 10 V/100% (input impedance 20 kΩ) 4 mA ~ 20 mA/100% 0 mA ~ 20 mA/100% (input impedance 250 Ω)	Master frequency reference
A2	MFAI 2		Combined w/A1
A3	MFAI 3/PTC input	-10 V ~ +10 V/-100% ~ +100% 0 V ~ 10 V/100% (input impedance 20 kΩ) 4 mA ~ 20 mA/100% 0 mA ~ 20 mA/100% (input impedance 250 Ω) PTC input	Auxiliary frequency reference
AC	Common	0 V	-
E(G)	Connect shielded cable	-	-
MA	Fault relay out	30 VDC, 10 mA ~ 1 A 250 VAC, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Fault
MB			Fault
MC	Common		-
M1	MFDO		During run
M2			
M3	MFDO	30 VDC, 10 mA ~ 1 A 250 VAC, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Zero speed
M4			
M5	MFDO		Speed agree 1
M6			
MP	Pulse train out	32 kHz maximum	Output frequency
FM	MFAO 1	0 V ~ +10 V/0% ~ 100%	Output frequency
AM	MFAO 2	-10 V ~ +10 V/-100% ~ +100% 4 mA ~ 20 mA	Output current
AC	Common	0 V	-
PS	External 24 V PS input	21.6 VDC ~ 26.4 VDC, 700 mA	-
AC	External 24 V PS ground	0V	-
D+	Communication +	MEMOBUS/Modbus, RS-485	-
D-	Communication -	115.2 kbps maximum	-
AC	Common	0 V	-

E How to Remove the Drive Front Cover






F If You Push the Run Button but the Motor Does Not Spin

The diagram illustrates the steps to resolve a motor that does not spin after the Run button is pressed. It shows the drive's keypad menu with parameters like Freq Reference (KPD), Output Frequency, and Output Current. A 'RUN' button is shown being pressed. A second diagram shows the 'Parameters' menu where 'Reference 1' is set to 10.00 Hz, and the 'RUN' button is pressed again, resulting in the motor spinning at 10 Hz.

G Parameter Groups

A: Initialization	d: Reference Settings	F: Options	L: Protection Functions	o: Keypad-Related Settings
A1 Initialization	d1 Frequency Reference	F1 PG Option Setup (Encoder)	L1 Motor Protection	o1 Keypad Display
A2 User Parameters	d2 Reference Limits	F2 Analog Input Option	L2 Power Loss Ride Through	o2 Keypad Operation
b: Application				
b1 Operation Mode Selection	d3 Jump Frequency	F3 Digital Input Option	L3 Stall Prevention	o3 Copy Keypad Function
b2 DC Injection Braking and Short Circuit Braking	d4 Freq. Ref. Up/Down & Hold	F4 Analog Output Option	L4 Speed Detection	o4 Maintenance Monitors
b3 Speed Search	d5 Torque Control	F5 Digital Output Option	L5 Fault Restart	o5 Log Function
b4 Timer Function	d6 Field Weakening/Forcing	F6 Communication Option	L6 Torque Detection	q: DriveWorksEZ Parameters
b5 PID Control	d7 Offset Frequency	F7 Ethernet Options	L7 Torque Limit	r: DriveWorksEZ Connections
b6 Dwell Function	E: Motor		L8 Drive Protection	T: Motor Tuning
b7 Droop Control	E1 V/f Pattern for Motor 1	H: Terminal Functions		U: Monitors
b8 Energy Saving	E2 Motor 1 Parameters	H1 Digital Inputs	L9 Drive Protection 2	U1 Operation Status Monitors
b9 Zero Servo	E3 V/f Pattern for Motor 2	H2 Digital Outputs	n: Special Adjustment	
C: Tuning				
C1 Accel & Decel Time	E4 Motor 2 Parameters	H3 Analog Inputs	n1 Hunting Prevention	U2 Fault Trace
C2 S-Curve Characteristics	E5 PM Motor Settings	H4 Analog Outputs	n2 Auto Freq. Regulator (AFR)	U3 Fault History
C3 Slip Compensation	E9 Motor Setting	H5 Modbus Communication	n3 High Slip/Overexcite Braking	U4 Maintenance Monitors
C4 Torque Compensation		H6 Pulse Train Input/Output	n4 AOLV Tuning	U5 PID Monitors
C5 Auto Speed Regulator (CSR)		H7 Virtual Inputs/Outputs	n5 Feed Forward Control	U6 Operation Status Monitors
C6 Duty & Carrier Frequency			n6 Online Tuning	U8 DriveWorksEZ Monitors
			n7 EZ Drive	
			n8 PM Motor Control Tuning	

H Troubleshooting Resources for Drive Faults and Alarms

Resource	Choose This When:	URL	QR Code
Installation & Primary Operation	You have access to the paper copy of the manual that was packaged with the drive. This manual lists all drive faults and alarms, and offers a selection of causes and solutions.	https://www.yaskawa.com/toepc7106170v	 PDF download
DriveWizard Mobile App	You want to use your smartphone or tablet and use the embedded help to look up the full complement of causes and solutions to all drive faults and alarms.	https://www.yaskawa.com/dwm	 App download
Technical Reference	You want to download a PDF of the manual to your smartphone or tablet. This manual lists the full complement of causes and solutions to all drive faults and alarms and also includes detailed information about drive maintenance, wiring, and programming.	https://www.yaskawa.com/siepc7106170v	 PDF download

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